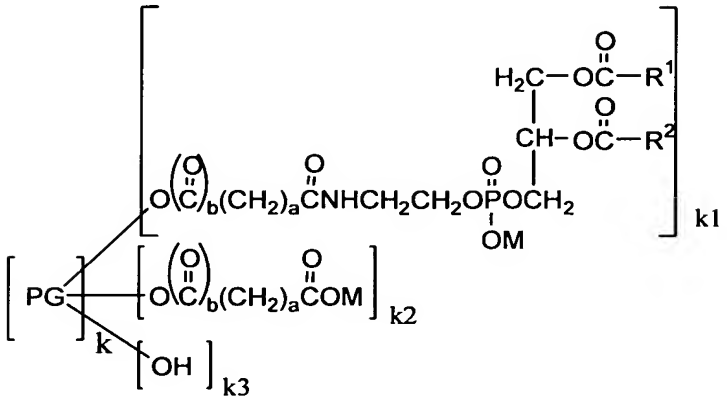
What is claimed is:

1. A phospholipid derivative represented by the following formula (1):



wherein [PG]k represents a residue of polyglycerin having a polymerization degree of k, wherein k is 2 to 50, R^1CO and R^2CO independently represent an acyl group having 8 to 22 carbon atoms, symbol "a" independently represents an integer of 0 to 5, symbol "b" independently represents 0 or 1, M represents hydrogen atom, an alkali metal atom, an ammonium, or an organic ammonium, and k1, k2, and k3 represent numbers satisfying the following conditions: $1 \leqq k1 \leqq (k+2)/2$, $0 \leqq k2$, and $k1 + k2 + k3 = k + 2$.

2. The phospholipid derivative according to claim 1, wherein k1 satisfies $1 \leqq k1 \leqq 2$.

3. The phospholipid derivative according to claim 1 or 2, wherein k2 satisfies $0 \leqq k2 \leqq 1$.

4. The phospholipid derivative according to any one of claims 1 to 3, wherein k1, k2, and k3 satisfy $8 \leqq k1 + k2 + k3 \leqq 52$.

5. The phospholipid derivative according to any one of claims 1 to 4, wherein R^1CO and R^2CO independently represent an acyl group having 12 to 20 carbon atoms.

6. The phospholipid derivative according to any one of claims 1 to 5, wherein k2 is 0.

7. The phospholipid derivative according to claim 6, wherein a and b represent 0.

8. The phospholipid derivative according to any one of claims 1 to 5, wherein

k2 satisfies 0 < k2.

9. A lipid membrane structure comprising the phospholipid derivative according to any one of claims 1 to 8.

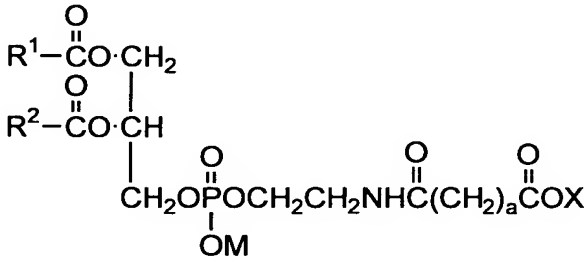
10. The lipid membrane structure according to claim 9, which is a liposome.

11. A surfactant comprising the phospholipid derivative according to any one of claims 1 to 8.

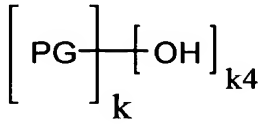
12. A solubilizer comprising the phospholipid derivative according to any one of claims 1 to 8.

13. A dispersing agent comprising the phospholipid derivative according to any one of claims 1 to 8.

14. A method for producing the phospholipid derivative according to claim 1, which comprises the step of reacting a compound represented by the following formula (2):



wherein R^1, R^2, a, and M have the same meanings as defined above, and X represents hydrogen atom or N-hydroxysuccinimide, with a polyglycerin represented by the following formula (3):



wherein [PG]k represents a residue of polyglycerin having a polymerization degree of k, wherein k has the same meaning as defined above, and k4 is a number satisfying the following condition: k4 = k + 2.

15. A method for producing the phospholipid derivative according to claim 1, which comprises the following steps:

(A) the step of reacting a polyglycerin with a dibasic acid or a halogenated carboxylic

acid to obtain a carboxylated polyglycerin; and

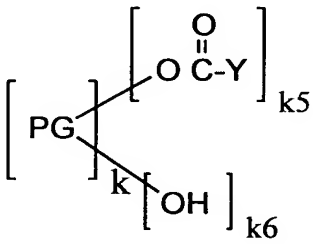
(B) the step of reacting the carboxylated polyglycerin obtained in the step (A) with a phospholipid.

16. A method for producing the phospholipid derivative according to claim 1, which comprises the following steps:

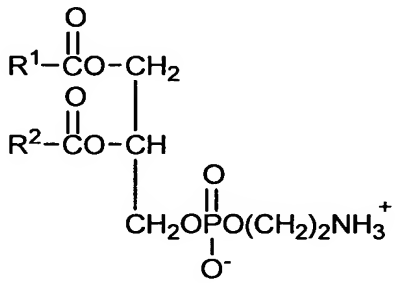
(A) the step of reacting a polyglycerin with a halogenated carboxylic acid ester and hydrolyzing the resulting ester compound to obtain a carboxylated polyglycerin; and

(B) the step of reacting the carboxylated polyglycerin obtained in the step (A) with a phospholipid.

17. A method for producing the phospholipid derivative according to any one of claims 1 to 7, which comprises the step of reacting a polyglycerin derivative represented by the following formula (4):



wherein [PG]k represents a residue of polyglycerin having a polymerization degree of k, wherein k represent a number of 2 to 50, Y represents hydroxyl group or a leaving group, and k5 and k6 are numbers satisfying the following conditions: $1 \leqq k5 \leqq (k+2)/2$, and $k5 + k6 = k + 2$, with a phospholipid represented by the following formula (5):



wherein R^1 and R^2 have the same meanings as defined above, in an organic solvent in the presence of a basic catalyst.

18. A pharmaceutical composition containing the lipid membrane structure according to claim 9 retaining a medicament.

19. The pharmaceutical composition according to claim 18, wherein the medicament is an antitumor agent.